**Stat & Data Analysis Core Assessment #2 practice 1**

Below is data on the years of education (X) versus the years spent in jail (Y) by a sample of 20 – 40 year old men.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Education (Yrs)** | 24 | 20 | 12 | 13 | 20 | 21 | 10 | 6 | 8 | 10 | 16 | 18 | 10 | 28 | 5 | 8 | 9 | 12 | 14 | 15 | 17 | 21 | 23 | 7 |
| **Jail time (Yrs)** | 0 | 2.1 | 5.2 | 3.6 | 0.5 | 1 | 2.2 | 6.5 | 7 | 4 | 2.5 | 1.6 | 5.2 | 0.1 | 8.7 | 8.9 | 7.6 | 2.3 | 4.5 | 2.1 | 1.3 | 0.4 | 0.9 | 9.1 |

1. Create a scatterplot of the data. (1/2 pt)
2. Describe the scatterplot. (1/2 pt)
3. Are there any outliers in this plot. Identify them if so. (1/2 pt)
4. Find the equation of the linear regression (LSR) line and the correlation (r). (1/2 pt)
5. Does the correlation (r) agree with your description in part (b)? Why or why not? (1/2 pt)
6. Interpret the slope of the LSR line, in context of the problem. (1/2 pt)
7. Using your LSR line, predict the jail time for someone with 35 years of education. (1/2 pt)
8. Is your prediction in part (g) a good prediction? Why or why not? (1/2 pt)

**Stat & Data Analysis Core Assessment #2 practice 2**

Below is a list of distances (X-variable, in miles) and airfares (Y-variable, in dollars) for flights.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Distance** | 576 | 370 | 612 | 1216 | 409 | 1502 | 946 | 998 | 189 | 787 | 210 | 737 |
| **Airfare** | 178 | 138 | 94 | 278 | 158 | 258 | 198 | 188 | 98 | 179 | 138 | 98 |

1. Create a scatterplot of the data. (1/2 pt)
2. Describe the scatterplot. (1/2 pt)
3. Are there any outliers in this plot? Identify them if so. (1/2 pt)
4. Find the equation of the linear regression (LSR) line and the correlation (r). (1/2 pt)
5. Does the correlation (r) agree with your description in part (b)? Why or why not? (1/2 pt)
6. Interpret the slope of the LSR line, in context of the problem. (1/2 pt)
7. Using your LSR line, predict the airfare for a flight of 2000 miles. (1/2 pt)
8. Is your prediction in part (g) a good prediction? Why or why not? (1/2 pt)

**Stat & Data Analysis Core Assessment #2 practice 3**

Below is a list of Horsepowers (X variable) and Gas Mileage (Y variable) for a sample of cars.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Horsepower (HP)** | 200 | 230 | 200 | 148 | 291 | 300 | 295 | 140 | 166 | 138 | 306 | 300 | 212 | 158 | 150 |
| **Highway Gas Mileage (MPG)** | 32 | 30 | 30 | 32 | 22 | 20 | 21 | 40 | 34 | 36 | 28 | 18 | 25 | 34 | 30 |

1. Create a scatterplot of the data. (1/2 pt)
2. Describe the scatterplot. (1/2 pt)
3. Are there any outliers in this plot? Identify them if so. (1/2 pt)
4. Find the equation of the linear regression (LSR) line and the correlation (r). (1/2 pt)
5. Does the correlation (r) agree with your description in part (b)? Why or why not? (1/2 pt)
6. Interpret the slope of the LSR line, in context of the problem. (1/2 pt)
7. Using your LSR line, predict the Gas Mileage for a car with 375 HP. (1/2 pt)
8. Is your prediction in part (g) a good prediction? Why or why not? (1/2 pt)